

A NEW SPECIES OF *GONOLOBUS*
(APOCYNACEAE: ASCLEPIADEAE, GONOLOBINAE)
FROM SOUTHERN COSTA RICA

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ABSTRACT

A new species of *Gonolobus* is described, resulting from collections from southern Costa Rica.

RESUMEN

Se describe una especie nueva de *Gonolobus* como resultado de recientes colecciones del sur de Costa Rica.

Recent study of lianas and vines in southern Costa Rica resulted in a preliminary checklist of seventy species in thirty-two families from the Las Cruces Biological Station (Krings 1999). Ongoing work with collections resulting from this study revealed a new species of *Gonolobus* Michx. (Apocynaceae: Asclepiadeae, Gonolobinae).

Gonolobus tenuisepalus Krings, sp. nov. (**Fig. 1**). TYPE: COSTA RICA. PUNTARENAS: Coto Brus, San Vito de Java, Estación Biológica Las Cruces, 30 m downhill from Trail Marker Ft 59, 1200 m elev., 11 Mar 1997, Krings 274 (HOLOTYPE: F; ISOTYPES: CR, NCSC, US).

Species nova *Gonolobus* distinguibili a *Gonolobus jaliscensis* B.L. Rob. & Greenm. petioli c. 4–4.3 cm longi; sepala lineare vel anguste lanceolata, supra glabrata, subtus dense pilosa, 5–7.2 mm; corollae purpureis, lobi deltatis, supra puberulis, subtus pilosis.

Twining vine; indument of short and long hairs, the short hairs straight, pointed or sometimes capitate, to 0.4 mm long, borne primarily along the stem, midvein, and secondary veins, long hairs straight to flexuously curved, (2–)2.8–3.5(–4.3) mm long, borne along stem, veins, and over leaf surfaces; stems densely yellowish-clear pilose or hirsute; latex white, abundant; petioles 4–4.3 cm long, densely yellowish pilose to hirsute; leaves opposite, 12–14 cm long, 6.8–8 cm wide, ovate, densely yellowish pilose to hirsute on both surfaces, the bases cordate to somewhat auriculate, frequently oblique, the apices acuminate; inflorescences axillary, umbelliform, densely 9–15-flowered, the peduncles 0.5–1 cm long; pedicels 7–9 mm long, densely yellowish pilose to hirsute, the hairs to 3 mm long; flowers mildly fetid; sepals 5, linear to narrowly lanceolate, 5–7.2 mm long, pilose or hirsute on the outer surface, glabrate on the inner surface; corolla campanulate

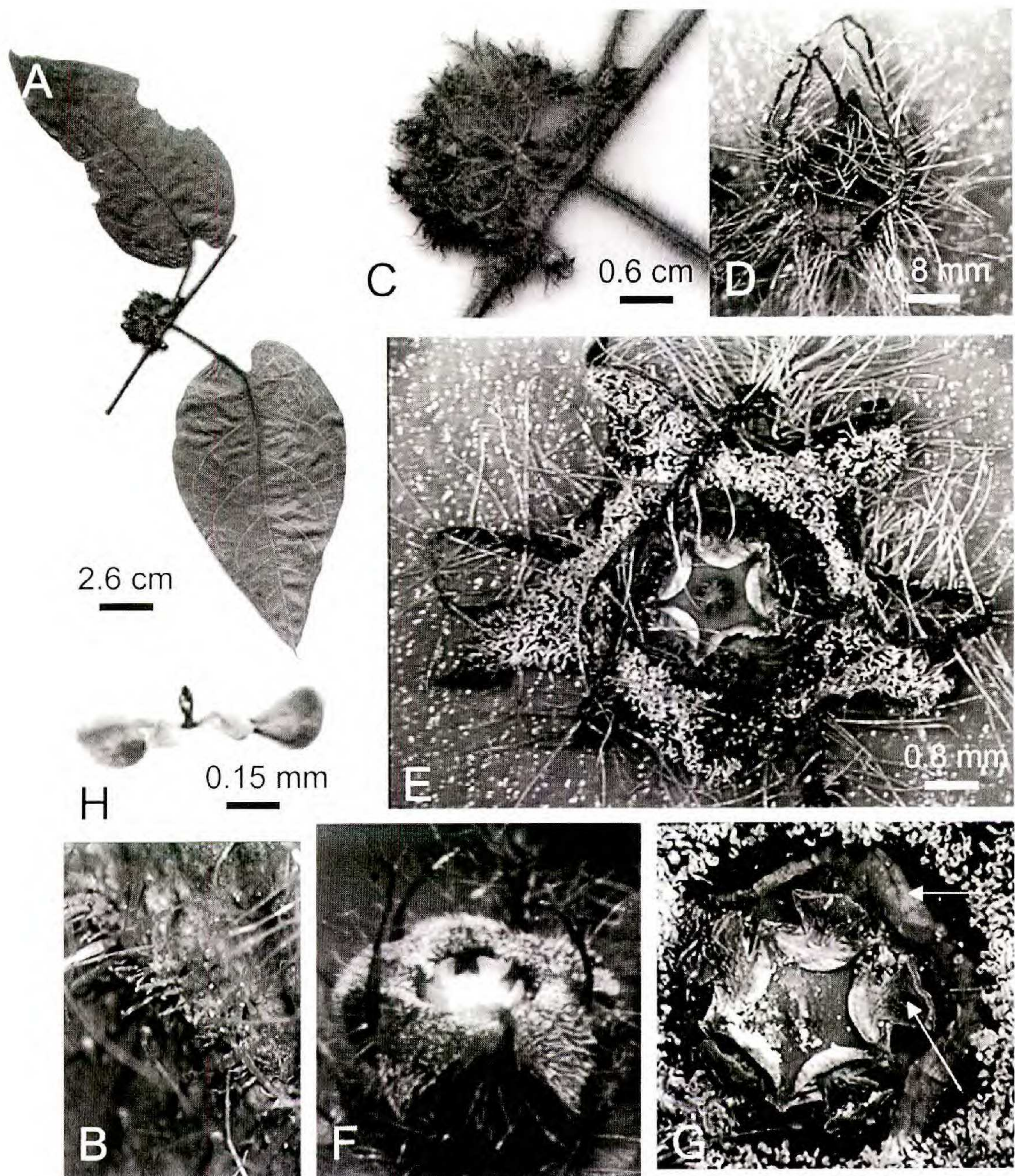


FIG. 1. *Gonolobus tenuisepalus* Krings: A. Leaves and inflorescence; B. Long and short stem trichomes; C. Inflorescence; D. flower in bud; E. Dried, flattened flower; F. Living flower, showing erect sepals and anther appendages; G. Detail of flattened flower (horizontal arrow indicates glabrous faucal annulus; diagonal arrow indicates anther appendages); H. Pollinarium. All based on *Krings* 274 (HT: F; IT: CR, NCSC, US).

to suburceolate, 5-lobed, the tube 1-2.5 mm long, the lobes deltate, uniformly flat, dark purple to dark brownish-red, 3-4 mm long, conspicuously shorter than the sepals, long yellowish pilose to hirsute below, the hairs to 2.8 mm long, coarsely villosulous-strigillose above; faucal annulus 5-lobed, ca. 0.05-0.1 mm thick, glabrous; corona 1, 5-lobed, fused at the base, adnate to and surrounding

the gynostegium, the lobes deltoid to rhomboid, essentially as high as the style-head, 0.4–0.5 mm high; anthers with fleshy, obdeltate, dorsal appendages; pollinaria horizontal, ca. 0.5 mm long; follicles unknown.

Gonolobus comprises about 150 species limited to the New World tropics and subtropics (Stevens 2001). *Gonolobus tenuisepalus* appears to be closely related to *Gonolobus jaliscensis* B.L. Rob. & Greenm., sharing indument of short and long hairs, densely multi-flowered, umbelliform inflorescences, small corollas (ca. 8 mm in diam.), and similar coronas and anther appendages. *Gonolobus jaliscensis*, however, exhibits petioles shorter (to 2.2 cm long), sepals shorter (only to 2 mm long), corollas greenish to yellowish (purple in *G. tenuisepalus*), and anther appendages mushroom-shaped. With the addition of *G. tenuisepalus*, nine species of *Gonolobus* are known from Costa Rica (two yet undescribed, see Stevens 2001). An updated key follows:

1. Corollas barbellate within or with barbed lobes.
 2. Abaxial and adaxial leaf surfaces glabrous, except scattered appressed-pilose along the principal veins and in the axils; faucal annulus glabrous; anther appendages ≥ 1.4 mm long _____ **Gonolobus barbatus** Kunth
 2. Abaxial and adaxial leaf surfaces puberulent; faucal annulus ciliate (although this sometimes hidden by the barbellate hairs of the corolla limb); anther appendages ca. 0.9 mm long _____ **Gonolobus edulis** Hemsl.
1. Corollas variously glabrous or pubescent, but not barbellate or barbed.
 3. Corolla purple, the lobes 4 mm long or less; faucal annulus 0.05–0.1 mm high, essentially a 5-lobed ridge; anther appendages obdeltate, ca. 0.5 mm long _____ **Gonolobus tenuisepalus** Krings
 3. Corolla greenish or yellowish (sometimes purple in *G. sp. B* and *G. sp. D*), the lobes ≥ 6 mm long; faucal annulus various; anther appendages lacking (*G. sp. B*) OR ≥ 0.3 mm long and variously shaped, the apices entire, bifid, or with a central mamillate tip.
 4. Outer petal surface with trichomes 0.8–1.5 mm long; anther appendages bifid _____ **Gonolobus heterophyllus** (Hemsl.) W.D. Stevens.
 4. Outer petal surface glabrous or the trichomes ≤ 0.4 mm in length; anther appendages entire, mamillate tipped, or lacking, but not bifid.
 5. Corolla lobes ≥ 15 mm long; anther appendages subquadrate, 1–2 mm long _____ **Gonolobus albomarginatus** (Pittier) Woodson
 5. Corolla lobes ≤ 12 mm long; anther appendages various or lacking.
 6. Corolla purple, the lobes 7.2–9.5 mm long, the apices concave; faucal annulus an erect, 5-lobed tube, 0.7–1.2 mm long; anther appendages lacking _____ **Gonolobus sp. B**
 6. Corolla greenish or yellowish (sometimes purple in *G. sp. D*), the lobes of various lengths, planar; faucal annuli various, sometimes an indistinct ridge (e.g., *G. chiriquiensis*); anther appendages present.
 7. Leaf bases truncate to rounded; anther appendages rounded, with a short, central, mammillate tip _____ **Gonolobus chiriquensis** (Woodson) Woodson
 7. Leaf bases cordate; anther appendages various.
 8. Corolla purple, brownish, or green, the tube 1.7–2.7 mm long, the

- lobes 6.6–11.7 mm long, 3.2–4.7 mm wide; gynostegium stipitate, the stipe 0.3–0.6 mm long; corona cup-shaped _____ **Gonolobus** sp. D
8. Corolla green, the tube 3.7–5.7 mm long, the lobes 12.2–18.2 mm long, 7.8–12.5 mm wide; gynostegium essentially sessile; corona not cup-shaped _____ **Gonolobus denticulatus** (Vahl) W.D. Stevens

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